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AUTHOR Clifford, Margaret M.
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ABSTRACT

This study was designed to test two major hypotheses: (1) Validity of expectation is an increasing monotonic function of development. (2) Invalidity of expectation is more a function of overestimation of hedonistic tendencies than a function of underestimation. A total of 277 middle class children in the first, fourth, and fifth grades were given two trials on a task to which high feedback was attached and two trials on a different task with which low feedback was associated. They were then presented with a final task, resembling either the high or low feedback tasks just completed. Subjects were asked to indicate the score they expected to attain. Study results supported both major hypotheses and emphasized that overestimation or hedonistic expectations are a decreasing monotonic function of grade in school, and sex differences were virtually nonexistent for subjects in this sample. The developmental function demonstrated in this experiment suggests that if valid expectations are a major component of human motivation, the manipulation of validity of expectation in children warrants attention. (ED)

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The Nature of Children's Expectations

Margaret M. Clifford

Expectation (i.e., anticipated behavior outcome) serves as a basic component, if not an assumption, in human motivation theories (e.g., dissonance, attribution, equity, need achievement). Thus, the generalizability of such theories is likely to depend upon the quality or accuracy of ones expectations. That is, to the extent that an expectation is inaccurate or ill-founded, its function as a predicter or motivational agent would seem suspect.

Several studies suggest that the quality of an expectation is a function of a realism-unrealism continuum and/or a cognitive-affective dimension (Irwin and Mintzer, 1942; Preston and Bayton, 1941; MacIntosh, 1942). Other experiments (Bialer, 1961; Marks, 1951; Irwin, 1953) indicate that desired outcome is a major factor influencing performance as well as the formulation of expectations. A comparison of studies further suggests that the accuracy of an expectation improves with age and children are especially prone to give high expectations. It does not seem, however, that research has been designed to test these specific developmental functions.

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While there is evidence indicating boys' expectations are more optimistic than those of girls (Crandall, 1969), there are related studies which yielded no sex differences (Bialer, 1961; Marks, 1951) and numerous investigations which fail to report sex analyses (Hess & Jessor, 1960; Wolfe, 1972; Biggs & Tinsley, 1970; Keefer, 1969; Irwin, 1953).

Thus, the present study has been designed to test two major hypotheses: 1. Validity of Expectation (E_v) is an increasing monotonic function of development. 2. Invalidity of expectation is more a function of overestimation or hedonistic tendencies than a function of underestimation. (Analysis of sex

differences will be conducted, but for reasons cited above, no specific predictions are entertained.)

Method

Subjects

Observations were obtained from four classrooms at each of three grade levels: first, third, and fifth. The number of subjects per level was 94, 93, and 90 respectively. An examination of sex ratio, age and composite grade equivalence on the Iowa Test of Basic Skills indicated that subjects at each grade level represented a relatively typical middle class population.

Overview

Subjects were given two trials on a task to which high feedback was attached and two trials on a different task with which low feedback was associated. They were then presented with a final task, resembling either the high- or the low-feedback tasks just completed. Subjects were asked to indicate the score they expected to attain.

Materials & Procedure

Two types of perceptual judgment problems were designed for this experiment: "string" problems (ST) in which the larger of two rectangular line drawings was to be identified, and "land" problems (LA) in which the larger of two irregular-shaped areas was to be identified. Beside each of any two drawings to be compared, was a spot. Supposedly the spot corresponding to a "correct response" was completely erasable while that associated with an "incorrect response" was only partially erasable. In reality, the line lengths or areas were equal, and both spots for any given problem were either erasable or non-erasable. Thus, the administration of feedback and control of performance was manipulated.

Twenty unique figures of each problem type (ST and LA) were paired to

construct ten problems arranged on a 8½ x 11 sheet. A parallel sheet for each type of task was generated by rematching and rearranging the twenty figures on a second page. Thus, there were four sheets which were then assembled in one of two sequences: LA_1, ST_1, LA_2, ST_2 or ST_1, LA_1, ST_2, LA_2. Prefabricated feedback on these pages was either 8, 3, 7, 2 or 3, 8, 2, 7. In any given booklet, therefore, one problem type was consistently associated with high feedback while the other was associated with low feedback. Another sheet of each type consisting of a third rematching of figures (LA_3 and ST_3) was generated. Either LA_3 or ST_3 was attached as a fifth page to a subject's booklet and used to elicit an expectation. The cover sheet for these booklets contained one example of each type of problem. Unlike the "unsolvable" problems, the examples reflected obvious discrepancies and answer spots were keyed to reflect objectively correct and incorrect responses.

The back of the last page contained three follow-up questions designed to measure skills considered relevant to the processing of feedback and the formulation of valid expectation. The nature of these items was:

1. The subject was asked to indicate whether he found ST or LA problems easier.
2. He was asked to indicate the number of correct responses he made on his first 10-item page.
3. Given an example of an incorrectly worked LA problem, the subject was asked to indicate whether the item was right or wrong.

Each response was scored on a two-point scale where the value two represented relatively high accuracy in processing feedback. An elaborate counterbalancing for Task Sequence, Feedback Sequence, Nature of Fifth Page and Page Direction ("right-side-up" or "upside-down") yielded 16 different booklet forms. A systematic

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distribution of these forms insured that no two adjacent subjects worked similar pages during this group administered experiment.

After task instructions were given, the two sample problems were worked. This insured the subjects' understanding of the task. Following this each of the next four pages were worked with an allowance of approximately one and a half minutes per page.

Upon turning to page five, subjects were asked to write the number of problems they thought they would get correct. Subjects were then directed to close their booklets without working this last page. They were then assisted in reading each of the follow-up items. After collecting materials an "informal debriefing" was conducted consisting primarily of answering questions students asked and assuring them that they would have scored much higher if the items were like the examples on the cover.

Expectation Measures

Two measures of expectation were obtained: The Raw Score Expectation (E_r), recorded on page five of a booklet and Validity of Expectation (E_v) which was a measure of the discrepancy between E_r and the prefabricated scores on the two preceding pages of corresponding type. (E.g., If page five consisted of LA3, the mean feedback on LA_1 and LA_2 was compared with the expectation recorded by the subject on page five.) The scores obtained on the pages similar-in-type to page five are subsequently referred to as "relevant feedback." E_v was coded on a three-point scale in which a high score represented little discrepancy or high validity.

Results

The results of the Sex x Grade analyses of variance of E_v interpreted in view

of the means offered unambiguous support for the prediction that E_v is an increasing monotonic function of development (Grade effect, $F = 4.74$; $p < .01$). This function did not differ substantially with sex ($F = .12$; $p < .73$) nor was there a significant interaction ($F = .64$; $p < .53$).

The analysis of variance of E_r also yielded a Grade effect ($F = 10.77$; $p < .001$) in the absence of a sex or interaction effect. The nature of this effect was, as expected, the reverse of that found for E_v: while E_v increased with grade, E_r decreased. Furthermore, mean E_r, regardless of grade, was above the average controlled feedback (5) and thus the data supports the second prediction: invalid expectations are more a function of overestimation than underestimation.

Reconfirmation of this developmental hedonistic trend was further evidenced in the frequency with which subjects stated a "perfect" expectancy (recorded a score of "ten" on page five). This occurred with 44% of the subjects in the first grade, 20% in third grade and 3% in fifth grade. All pairwise comparisons between these proportions are significant at or beyond the .001 level.

In summary, therefore, the E_v and E_r data emphasized that a) valid expectations are an increasing monotonic function of development, b) invalid expectations in children result primarily from overestimation c) overestimation or hedonistic expectations are a decreasing monotonic function of Grade, and d) sex differences in E_r and E_v are virtually non-existent for subjects in this sample.

Additional analyses of variance were performed to investigate whether the developmental patterns of E_v and E_r were dependent upon subjects stating an expectancy on a task associated with "success" vs "failure." Due to prefabricated feedback and counterbalancing, the relevant feedback associated with page five was 7.5 for half of the subjects and 2.5 for the others. An analysis of Level of

Relevant Feedback (High vs Low) x Grade for E_v and E_r yielded the anticipated Grade effect on both dependent measures, and a significantly higher E_v for "success" (High) condition. However, given the pervading hedonistic tendency reflected in E_r this latter effect might be nothing more than a ceiling phenomena. E_r was not found to be a function of the High-Low orientation. That is, E_r was similar regardless of whether a subject was stating an expectancy on a task formerly associated with low feedback or one formerly associated with high feedback.

Analyses of the subjects' responses on the follow-up items lend credence to the speculation that the ability to accurately process feedback may partially explain the developmental function of E_v: Older subjects revealed greater accuracy.

Discussion

The developmental function demonstrated in this experiment suggests that if, as assumed, valid expectations are a major component of human motivation, the manipulation of E_v in children warrants attention.

While grade (or age) emerges as the most obvious factor accounting for variability of E_v in this study, it is a status variable which obviously precludes manipulation. If, however, one postulates that this developmental function of E_v can alternatively be explained by an increasing monotonic relationship between Grade and accuracy in processing feedback, training on skills such as perception, recognition, discrimination, association, and integration become viable techniques by which to affect E_v. Furthermore, if one postulates that the developmental function of E_v is partially explained by a decreasing monotonic function between Grade and hedonistic tendency, reality training (e.g., emphasizing the

difference between what one would <u>like</u> to have happen and what one thinks <u>will</u> happen in a given situation) may provide a means of manipulating E_v. As pointed out in the results, data from the follow-up items lends credence to these postulations.

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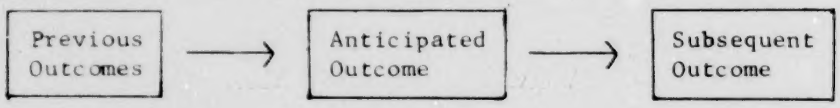
The Nature of Children's Expectations[1]

DEFINITIONS:

Validity of Expectation (E_v) is the discrepancy between an anticipated outcome and previous related outcomes.

Predictive Value of Expectation (E_p) is the discrepancy between an anticipated outcome and the actual outcome of that event.



ASSUMPTION:

Predictive Value of Expectation is dependent upon the Validity of Expectation.

HYPOTHESES:

1. E_v is increasing monotonic function of development.
2. Invalid expectations reflect overestimation more than underestimation.
3. Overestimation is a decreasing monotonic function of development.

SUBJECTS:

94 first graders, 93 third graders and 90 fifth graders (approximately half male and half female) from a relatively typical middle class population.

OVERVIEW:

Subjects were given two trials on a task to which high feedback was attached and two trials on a different task with which low feedback was associated. They were then presented with a final task, resembling either the high- or the low-feedback tasks just completed. Subjects were asked to indicate the score they expected to attain on the final task.

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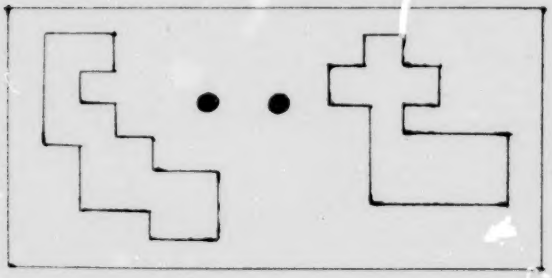
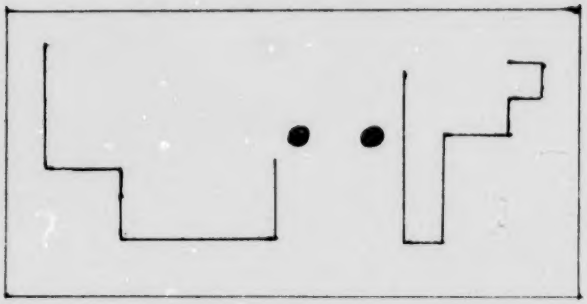
[1] Outline of study presented at eighty-second annual convention of APA, New Orleans, Louisiana, 1974. M. M. Clifford, Dept. of Ed. Psych., University of Iowa, Iowa City, Iowa.

MATERIALS AND PROCEDURES:



Example of "Land" Problem



Example of "String" Problem

Two pages, each containing 10 problems, of each problem type were prepared. High prefabricated feedback (scores of 8 and 7) was provided for the 2 pages of one type of task; low prefabricated feedback (scores of 2 and 3) was provided for the other 2 pages. S was directed to erase the spot next to the longer "string" or larger piece of "land." In reality, all lines and areas were equal and both spots for any single problem were keyed either correct or incorrect. A fifth page (of either "land" or "string" problems) was used to elicit an expectation. The anticipated score was recorded at the top of this final page. Task sequence, feedback sequence, and type of problem used for page five, was counterbalanced.

Three follow-up items were designed to assess processing of feedback.

1. S was asked to indicate which of the two problem types was easier.
2. S was asked to indicate his score on the first page.
3. Given an example of an "incorrectly" worked problem, S was asked to indicate whether it was right or wrong.

DEPENDENT MEASURE:

Raw Score Expectation (E_r)--number recorded on page 5.

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Validity of Expectation (E_v)--discrepancy between E_r and mean feedback on two previously completed pages which were similar in type. (E_v was coded on 3-point scale with a high score representing little discrepancy or high validity.)

RESULTS:

Grade x Sex ANOVA on E_v yielded

Grade Effect, $F = 4.74$, $p < .01$.
No sex effect or interaction.
Grade means: 1.3, 1.4, 1.7 for first, third and fifth respectively.

Grade x Sex ANOVA on E_r yielded

Grade Effect, $F = 10.77$, $p < .001$.
No sex effect or interaction.
Grade means: 7.8, 7.0, 6.2 for first, third and fifth respectively.
(The average controlled feedback for any grade was 5; thus all means reflect overestimation.)

Percent of Subjects with Accurate Responses on Follow-up Items

Items	Grade 1	Grade 3	Grade 5
Task Difficulty	52	67	80
Correct Responses	65	86	89
Judgment of Example	82	81	89

| pairwise test, $p < .05$

|| pairwise test, $p < .01$

CONCLUSION:

All three predictions were supported.